

## SEQUENCE LISTING

&lt;110&gt; EXELIXIS, INC.

&lt;120&gt; RANBP2 AS MODIFIER OF THE PTEN/IGF PATHWAY AND METHODS OF USE

&lt;130&gt; EX04-037C-PC

&lt;150&gt; US 60/470,766

&lt;151&gt; 2003-05-14

&lt;160&gt; 7

&lt;170&gt; PatentIn version 3.2

&lt;210&gt; 1

&lt;211&gt; 10697

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1

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ttgcagtgaag atttaaaact aaagaagtag ctgattgttt caagaaaaca	3420
gtcagcagaa tttaatgaaa ctccagaaag gacatgtatc actggcagca	3480
aggagaccaa tcctgtggtg ttttttgatg tttgtgcgga cggatgaacct	3540
taactatgga attattttca aacattgttc ctcggaactgc tgagaacttc	3600
gcactggaga gaaaggcttt ggtttcaaga attccatttt tcacagagta	3660

```

ttgtttgccaggaggagat atcaccaaac atgatggaac aggcggacag tccatztatg 3720
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tggccaatca aggccagaat accaataatt ctcaatttgt tataaactg aagaaagcag 3840
aacatttgga ctttaagcat gtagtatttg ggtttgttaa ggatggcatg gatactgtga 3900
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gattgaagct tagctattac aatttgatag ttatgttcag cttttgaaaa tggacgtttc 4080
cgatttaca atgtaaaatt gcagcttata gctgttgta ctttttaatg tgttataatt 4140
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<210> 5
<211> 2146
<212> DNA
<213> Homo sapiens

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caggggtcac agacatttca tggggctcca ctaacagttg caactactgg cccttcagta 180
tattatagtc agtcaccagc atataattcc cagtatcttc tcagaccagc agctaattgt 240
actcccacaa agggcccagt ctatggcatg aataggcttc caccacaaca gcatatttat 300
gcctatccgc aacagatgca cacaccgcca gtgcaaagct catctgcttg tatgttctct 360
caggagatgt atggctctcc tgcattgctt tttgagtctc ctgcaacggg aattctatcg 420
cccaggggtg atgattactt taattacaat gttcaacaga caagcacaaa tccaccttg 480
ccagaaccag gatatttcac aaaacctccg attgcagctc atgcttcaag acctgcagaa 540
tctaagacta tagaatttgg gaaaactaat tttgttcagc ccatgccggg tgaaggatta 600
aggccatctt tgccaacaca agcacacaca acacagccaa ctcttttaa atttaactca 660
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cctcctgcag cttacagtaa cagtgaagc cttttaggtc tcctgacttc agataaaccc 780
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gggtcgagtc agcaaaagaa ttctggtttt cggcgaagtg atgatatgt tactttccat 960
ggtccagga aatcagtatt tggaacaccc actttagaga cagcaacaa gaatcatgag 1020
acagatggag gaagtgccca tggggatgat gatgatgacg gtcctcactt tgagcctgta 1080

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```

gtacctcttc ctgataagat tgaagtaaaa actggtgagg aagatgaaga agaattcttt 1140
tgcaaccgcg cgaaattggt tcgtttcgat gtagaatcca aagaatggaa agaacgtggg 1200
attggcaatg taaaaatact gaggcataaa acatctggta aaattcgct tctaattgaga 1260
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ccaaaaccag aacaacttgc tattagggttc aaaactcctg aggaagcagc actttttaaa 1440
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tcaaattagg ctgtcagaat tgtaaaagaa cccacaagtc atgataacaa ggatatttgc 1560
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ttttctacaa aggaaggaca gtgggattgc agtgcatgtt tgggtacaaa tgagggggagc 2040
tctacaaaat gtgctgcttg tcagaatccg agaaaacaga gtctacctgc acgacaacac 2100
ataaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 2146

```

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<210> 6
<211> 1026
<212> DNA
<213> Homo sapiens

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tgcttctcca ttggcaagta gccctgtgag aaaaaatctt ttccgttttg gtgagtcaac 180
aacaggattt aacttcagtt ttaaactctgc tttgagtcca tctaagtctc ctgccaaagt 240
gaatcagagt gggacttcag ttggcactga tgaagaatct gatgttactc aagaagaaga 300
gagagatgga cagtactttg aacctgttgt tcctttacct gatctagttg aagtatccag 360
tggtgaggaa aatgaacaag ttgttttttag tcacagggca aaactctaca gatatgataa 420
agatgttggt caatggaaag aaaggggcat tgggtgatata aagattttac agaattatga 480
taataagcaa gttcgtatag tgatgagaag ggaccaagta ttaaaacttt gtgccaatca 540

```

```

cagaataact ccagacatga ctttgcaaaa tatgaaaggg acagaaagag tatgggttg 600
gactgcatgt gattttgcag atggagaaaag aaaagtagag catttagctg ttcgttttaa 660
actacaggat gttgcagact cgtttaagaa aatttgtgat gaagcaaaaa cagcccagga 720
aaaagattct ttgataacac ctcatgtttc tcgggtcaagc actcccagag agtcaccatg 780
tggcaaaatt gctgtagctg tattagaaga acccacaaga gagaggacag atgttattca 840
gggtgatgat gtagcagatg caacttcaga agttgaagtg tctagcacat ctgaaacaac 900
accaaagca gtggtttctc ctccaaagtt tgtatttggc tcagagtctg ttaaaagcat 960
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gtgtgg 1026

```

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<210> 7
<211> 3224
<212> PRT
<213> Homo sapiens

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<400> 7

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Met Arg Arg Ser Lys Ala Asp Val Glu Arg Tyr Ile Ala Ser Val Gln
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```

```

Gly Ser Thr Pro Ser Pro Arg Gln Lys Ser Met Lys Gly Phe Tyr Phe
          20          25          30

```

```

Ala Lys Leu Tyr Tyr Glu Ala Lys Glu Tyr Asp Leu Ala Lys Lys Tyr
          35          40          45

```

```

Ile Cys Thr Tyr Ile Asn Val Gln Glu Arg Asp Pro Lys Ala His Arg
          50          55          60

```

```

Phe Leu Gly Leu Leu Tyr Glu Leu Glu Glu Asn Thr Asp Lys Ala Val
65          70          75          80

```

```

Glu Cys Tyr Arg Arg Ser Val Glu Leu Asn Pro Thr Gln Lys Asp Leu
          85          90          95

```

```

Val Leu Lys Ile Ala Glu Leu Leu Cys Lys Asn Asp Val Thr Asp Gly
          100          105          110

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```

Arg Ala Lys Tyr Trp Leu Glu Arg Ala Ala Lys Leu Phe Pro Gly Ser
          115          120          125

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```

Pro Ala Ile Tyr Lys Leu Lys Glu Gln Leu Leu Asp Cys Glu Gly Glu
          130          135          140

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Asp Gly Trp Asn Lys Leu Phe Asp Leu Ile Gln Ser Glu Leu Tyr Val  
 145 150 155 160  
 Arg Pro Asp Asp Val His Val Asn Ile Arg Leu Val Glu Val Tyr Arg  
 165 170 175  
 Ser Thr Lys Arg Leu Lys Asp Ala Val Ala His Cys His Glu Ala Glu  
 180 185 190  
 Arg Asn Ile Ala Leu Arg Ser Ser Leu Glu Trp Asn Ser Cys Val Val  
 195 200 205  
 Gln Thr Leu Lys Glu Tyr Leu Glu Ser Leu Gln Cys Leu Glu Ser Asp  
 210 215 220  
 Lys Ser Asp Trp Arg Ala Thr Asn Thr Asp Leu Leu Leu Ala Tyr Ala  
 225 230 235 240  
 Asn Leu Met Leu Leu Thr Leu Ser Thr Arg Asp Val Gln Glu Ser Arg  
 245 250 255  
 Glu Leu Leu Gln Ser Phe Asp Ser Ala Leu Gln Ser Val Lys Ser Leu  
 260 265 270  
 Gly Gly Asn Asp Glu Leu Ser Ala Thr Phe Leu Glu Met Lys Gly His  
 275 280 285  
 Phe Tyr Met His Ala Gly Ser Leu Leu Leu Lys Met Gly Gln His Ser  
 290 295 300  
 Ser Asn Val Gln Trp Arg Ala Leu Ser Glu Leu Ala Ala Leu Cys Tyr  
 305 310 315 320  
 Leu Ile Ala Phe Gln Val Pro Arg Pro Lys Ile Lys Leu Ile Lys Gly  
 325 330 335  
 Glu Ala Gly Gln Asn Leu Leu Glu Met Met Ala Cys Asp Arg Leu Ser  
 340 345 350  
 Gln Ser Gly His Met Leu Leu Asn Leu Ser Arg Gly Lys Gln Asp Phe  
 355 360 365  
 Leu Lys Glu Ile Val Glu Thr Phe Ala Asn Lys Ser Gly Gln Ser Ala  
 370 375 380  
 Leu Tyr Asp Ala Leu Phe Ser Ser Gln Ser Pro Lys Asp Thr Ser Phe  
 385 390 395 400

Leu Gly Ser Asp Asp Ile Gly Asn Ile Asp Val Arg Glu Pro Glu Leu  
 405 410 415

Glu Asp Leu Thr Arg Tyr Asp Val Gly Ala Ile Arg Ala His Asn Gly  
 420 425 430

Ser Leu Gln His Leu Thr Trp Leu Gly Leu Gln Trp Asn Ser Leu Pro  
 435 440 445

Ala Leu Pro Gly Ile Arg Lys Trp Leu Lys Gln Leu Phe His His Leu  
 450 455 460

Pro His Glu Thr Ser Arg Leu Glu Thr Asn Ala Pro Glu Ser Ile Cys  
 465 470 475 480

Ile Leu Asp Leu Glu Val Phe Leu Leu Gly Val Val Tyr Thr Ser His  
 485 490 495

Leu Gln Leu Lys Glu Lys Cys Asn Ser His His Ser Ser Tyr Gln Pro  
 500 505 510

Leu Cys Leu Pro Leu Pro Val Cys Lys Gln Leu Cys Thr Glu Arg Gln  
 515 520 525

Lys Ser Trp Trp Asp Ala Val Cys Thr Leu Ile His Arg Lys Ala Val  
 530 535 540

Pro Gly Asn Val Ala Lys Leu Arg Leu Leu Val Gln His Glu Ile Asn  
 545 550 555 560

Thr Leu Arg Ala Gln Glu Lys His Gly Leu Gln Pro Ala Leu Leu Val  
 565 570 575

His Trp Ala Glu Cys Leu Gln Lys Thr Gly Ser Gly Leu Asn Ser Phe  
 580 585 590

Tyr Asp Gln Arg Glu Tyr Ile Gly Arg Ser Val His Tyr Trp Lys Lys  
 595 600 605

Val Leu Pro Leu Leu Lys Ile Ile Lys Lys Lys Asn Ser Ile Pro Glu  
 610 615 620

Pro Ile Asp Pro Leu Phe Lys His Phe His Ser Val Asp Ile Gln Ala  
 625 630 635 640

Ser Glu Ile Val Glu Tyr Glu Glu Asp Ala His Ile Thr Phe Ala Ile  
645 650 655

Leu Asp Ala Val Asn Gly Asn Ile Glu Asp Ala Val Thr Ala Phe Glu  
660 665 670

Ser Ile Lys Ser Val Val Ser Tyr Trp Asn Leu Ala Leu Ile Phe His  
675 680 685

Arg Lys Ala Glu Asp Ile Glu Asn Asp Ala Leu Ser Pro Glu Glu Gln  
690 695 700

Glu Glu Cys Lys Asn Tyr Leu Arg Lys Thr Arg Asp Tyr Leu Ile Lys  
705 710 715 720

Ile Ile Asp Asp Ser Asp Ser Asn Leu Ser Val Val Lys Lys Leu Pro  
725 730 735

Val Pro Leu Glu Ser Val Lys Glu Met Leu Asn Ser Val Met Gln Glu  
740 745 750

Leu Glu Asp Tyr Ser Glu Gly Gly Pro Leu Tyr Lys Asn Gly Ser Leu  
755 760 765

Arg Asn Ala Asp Ser Glu Ile Lys His Ser Thr Pro Ser Pro Thr Lys  
770 775 780

Tyr Ser Leu Ser Pro Ser Lys Ser Tyr Lys Tyr Ser Pro Lys Thr Pro  
785 790 795 800

Pro Arg Trp Ala Glu Asp Gln Asn Ser Leu Leu Lys Met Ile Cys Gln  
805 810 815

Gln Val Glu Ala Ile Lys Lys Glu Met Gln Glu Leu Lys Leu Asn Ser  
820 825 830

Ser Asn Ser Ala Ser Pro His Arg Trp Pro Thr Glu Asn Tyr Gly Pro  
835 840 845

Asp Ser Val Pro Asp Gly Tyr Gln Gly Ser Gln Thr Phe His Gly Ala  
850 855 860

Pro Leu Thr Val Ala Thr Thr Gly Pro Ser Val Tyr Tyr Ser Gln Ser  
865 870 875 880

Pro Ala Tyr Asn Ser Gln Tyr Leu Leu Arg Pro Ala Ala Asn Val Thr  
885 890 895

Pro Thr Lys Gly Pro Val Tyr Gly Met Asn Arg Leu Pro Pro Gln Gln  
 900 905 910

His Ile Tyr Ala Tyr Pro Gln Gln Met His Thr Pro Pro Val Gln Ser  
 915 920 925

Ser Ser Ala Cys Met Phe Ser Gln Glu Met Tyr Gly Pro Pro Ala Leu  
 930 935 940

Arg Phe Glu Ser Pro Ala Thr Gly Ile Leu Ser Pro Arg Gly Asp Asp  
 945 950 955 960

Tyr Phe Asn Tyr Asn Val Gln Gln Thr Ser Thr Asn Pro Pro Leu Pro  
 965 970 975

Glu Pro Gly Tyr Phe Thr Lys Pro Pro Ile Ala Ala His Ala Ser Arg  
 980 985 990

Ser Ala Glu Ser Lys Thr Ile Glu Phe Gly Lys Thr Asn Phe Val Gln  
 995 1000 1005

Pro Met Pro Gly Glu Gly Leu Arg Pro Ser Leu Pro Thr Gln Ala  
 1010 1015 1020

His Thr Thr Gln Pro Thr Pro Phe Lys Phe Asn Ser Asn Phe Lys  
 1025 1030 1035

Ser Asn Asp Gly Asp Phe Thr Phe Ser Ser Pro Gln Val Val Thr  
 1040 1045 1050

Gln Pro Pro Pro Ala Ala Tyr Ser Asn Ser Glu Ser Leu Leu Gly  
 1055 1060 1065

Leu Leu Thr Ser Asp Lys Pro Leu Gln Gly Asp Gly Tyr Ser Gly  
 1070 1075 1080

Ala Lys Pro Ile Pro Gly Gly Gln Thr Ile Gly Pro Arg Asn Thr  
 1085 1090 1095

Phe Asn Phe Gly Ser Lys Asn Val Ser Gly Ile Ser Phe Thr Glu  
 1100 1105 1110

Asn Met Gly Ser Ser Gln Gln Lys Asn Ser Gly Phe Arg Arg Ser  
 1115 1120 1125

Asp	Asp	Met	Phe	Thr	Phe	His	Gly	Pro	Gly	Lys	Ser	Val	Phe	Gly
1130						1135					1140			
Thr	Pro	Thr	Leu	Glu	Thr	Ala	Asn	Lys	Asn	His	Glu	Thr	Asp	Gly
1145						1150					1155			
Gly	Ser	Ala	His	Gly	Asp	Asp	Asp	Asp	Gly	Pro	His	Phe	Glu	
1160					1165					1170				
Pro	Val	Val	Pro	Leu	Pro	Asp	Lys	Ile	Glu	Val	Lys	Thr	Gly	Glu
1175						1180					1185			
Glu	Asp	Glu	Glu	Glu	Phe	Phe	Cys	Asn	Arg	Ala	Lys	Leu	Phe	Arg
1190						1195					1200			
Phe	Asp	Val	Glu	Ser	Lys	Glu	Trp	Lys	Glu	Arg	Gly	Ile	Gly	Asn
1205						1210					1215			
Val	Lys	Ile	Leu	Arg	His	Lys	Thr	Ser	Gly	Lys	Ile	Arg	Leu	Leu
1220						1225					1230			
Met	Arg	Arg	Glu	Gln	Val	Leu	Lys	Ile	Cys	Ala	Asn	His	Tyr	Ile
1235						1240					1245			
Ser	Pro	Asp	Met	Lys	Leu	Thr	Pro	Asn	Ala	Gly	Ser	Asp	Arg	Ser
1250						1255					1260			
Phe	Val	Trp	His	Ala	Leu	Asp	Tyr	Ala	Asp	Glu	Leu	Pro	Lys	Pro
1265						1270					1275			
Glu	Gln	Leu	Ala	Ile	Arg	Phe	Lys	Thr	Pro	Glu	Glu	Ala	Ala	Leu
1280						1285					1290			
Phe	Lys	Cys	Lys	Phe	Glu	Glu	Ala	Gln	Ser	Ile	Leu	Lys	Ala	Pro
1295						1300					1305			
Gly	Thr	Asn	Val	Ala	Met	Ala	Ser	Asn	Gln	Ala	Val	Arg	Ile	Val
1310						1315					1320			
Lys	Glu	Pro	Thr	Ser	His	Asp	Asn	Lys	Asp	Ile	Cys	Lys	Ser	Asp
1325						1330					1335			
Ala	Gly	Asn	Leu	Asn	Phe	Glu	Phe	Gln	Val	Ala	Lys	Lys	Glu	Gly
1340						1345					1350			
Ser	Trp	Trp	His	Cys	Asn	Ser	Cys	Ser	Leu	Lys	Asn	Ala	Ser	Thr
1355						1360					1365			

Ala Lys	Lys Cys Val Ser Cys	Gln Asn Leu Asn Pro	Ser Asn Lys
1370	1375	1380	
Glu Leu	Val Gly Pro Pro Leu	Ala Glu Thr Val Phe	Thr Pro Lys
1385	1390	1395	
Thr Ser	Pro Glu Asn Val Gln	Asp Arg Phe Ala Leu	Val Thr Pro
1400	1405	1410	
Lys Lys	Glu Gly His Trp Asp	Cys Ser Ile Cys Leu	Val Arg Asn
1415	1420	1425	
Glu Pro	Thr Val Ser Arg Cys	Ile Ala Cys Gln Asn	Thr Lys Ser
1430	1435	1440	
Ala Asn	Lys Ser Gly Ser Ser	Phe Val His Gln Ala	Ser Phe Lys
1445	1450	1455	
Phe Gly	Gln Gly Asp Leu Pro	Lys Pro Ile Asn Ser	Asp Phe Arg
1460	1465	1470	
Ser Val	Phe Ser Thr Lys Glu	Gly Gln Trp Asp Cys	Ser Ala Cys
1475	1480	1485	
Leu Val	Gln Asn Glu Gly Ser	Ser Thr Lys Cys Ala	Ala Cys Gln
1490	1495	1500	
Asn Pro	Arg Lys Gln Ser Leu	Pro Ala Thr Ser Ile	Pro Thr Pro
1505	1510	1515	
Ala Ser	Phe Lys Phe Gly Thr	Ser Glu Thr Ser Lys	Thr Leu Lys
1520	1525	1530	
Ser Gly	Phe Glu Asp Met Phe	Ala Lys Lys Glu Gly	Gln Trp Asp
1535	1540	1545	
Cys Ser	Ser Cys Leu Val Arg	Asn Glu Ala Asn Ala	Thr Arg Cys
1550	1555	1560	
Val Ala	Cys Gln Asn Pro Asp	Lys Pro Ser Pro Ser	Thr Ser Val
1565	1570	1575	
Pro Ala	Pro Ala Ser Phe Lys	Phe Gly Thr Ser Glu	Thr Ser Lys
1580	1585	1590	



Ala	Pro	Lys	Ser	Gly	Phe	Glu	Gly	Met	Phe	Thr	Lys	Lys	Glu	Gly
1595						1600					1605			
Gln	Trp	Asp	Cys	Ser	Val	Cys	Leu	Val	Arg	Asn	Glu	Ala	Ser	Ala
1610						1615					1620			
Thr	Lys	Cys	Ile	Ala	Cys	Gln	Asn	Pro	Gly	Lys	Gln	Asn	Gln	Thr
1625						1630					1635			
Thr	Ser	Ala	Val	Ser	Thr	Pro	Ala	Ser	Ser	Glu	Thr	Ser	Lys	Ala
1640						1645					1650			
Pro	Lys	Ser	Gly	Phe	Glu	Gly	Met	Phe	Thr	Lys	Lys	Glu	Gly	Gln
1655						1660					1665			
Trp	Asp	Cys	Ser	Val	Cys	Leu	Val	Arg	Asn	Glu	Ala	Ser	Ala	Thr
1670						1675					1680			
Lys	Cys	Ile	Ala	Cys	Gln	Asn	Pro	Gly	Lys	Gln	Asn	Gln	Thr	Thr
1685						1690					1695			
Ser	Ala	Val	Ser	Thr	Pro	Ala	Ser	Ser	Glu	Thr	Ser	Lys	Ala	Pro
1700						1705					1710			
Lys	Ser	Gly	Phe	Glu	Gly	Met	Phe	Thr	Lys	Lys	Glu	Gly	Gln	Trp
1715						1720					1725			
Asp	Cys	Ser	Val	Cys	Leu	Val	Arg	Asn	Glu	Ala	Ser	Ala	Thr	Lys
1730						1735					1740			
Cys	Ile	Ala	Cys	Gln	Cys	Pro	Ser	Lys	Gln	Asn	Gln	Thr	Thr	Ala
1745						1750					1755			
Ile	Ser	Thr	Pro	Ala	Ser	Ser	Glu	Ile	Ser	Lys	Ala	Pro	Lys	Ser
1760						1765					1770			
Gly	Phe	Glu	Gly	Met	Phe	Ile	Arg	Lys	Gly	Gln	Trp	Asp	Cys	Ser
1775						1780					1785			
Val	Cys	Cys	Val	Gln	Asn	Glu	Ser	Ser	Ser	Leu	Lys	Cys	Val	Ala
1790						1795					1800			
Cys	Asp	Ala	Ser	Lys	Pro	Thr	His	Lys	Pro	Ile	Ala	Glu	Ala	Pro
1805						1810					1815			
Ser	Ala	Phe	Thr	Leu	Gly	Ser	Glu	Met	Lys	Leu	His	Asp	Ser	Ser
1820						1825					1830			

Gly	Ser	Gln	Val	Gly	Thr	Gly	Phe	Lys	Ser	Asn	Phe	Ser	Glu	Lys
1835						1840					1845			
Ala	Ser	Lys	Phe	Gly	Asn	Thr	Glu	Gln	Gly	Phe	Lys	Phe	Gly	His
1850						1855					1860			
Val	Asp	Gln	Glu	Asn	Ser	Pro	Ser	Phe	Met	Phe	Gln	Gly	Ser	Ser
1865						1870					1875			
Asn	Thr	Glu	Phe	Lys	Ser	Thr	Lys	Glu	Gly	Phe	Ser	Ile	Pro	Val
1880						1885					1890			
Ser	Ala	Asp	Gly	Phe	Lys	Phe	Gly	Ile	Ser	Glu	Pro	Gly	Asn	Gln
1895						1900					1905			
Glu	Lys	Lys	Ser	Glu	Lys	Pro	Leu	Glu	Asn	Gly	Thr	Gly	Phe	Gln
1910						1915					1920			
Ala	Gln	Asp	Ile	Ser	Gly	Gln	Lys	Asn	Gly	Arg	Gly	Val	Ile	Phe
1925						1930					1935			
Gly	Gln	Thr	Ser	Ser	Thr	Phe	Thr	Phe	Ala	Asp	Leu	Ala	Lys	Ser
1940						1945					1950			
Thr	Ser	Gly	Glu	Gly	Phe	Gln	Phe	Gly	Lys	Lys	Asp	Pro	Asn	Phe
1955						1960					1965			
Lys	Gly	Phe	Ser	Gly	Ala	Gly	Glu	Lys	Leu	Phe	Ser	Ser	Gln	Tyr
1970						1975					1980			
Gly	Lys	Met	Ala	Asn	Lys	Ala	Asn	Thr	Ser	Gly	Asp	Phe	Glu	Lys
1985						1990					1995			
Asp	Asp	Asp	Ala	Tyr	Lys	Thr	Glu	Asp	Ser	Asp	Asp	Ile	His	Phe
2000						2005					2010			
Glu	Pro	Val	Val	Gln	Met	Pro	Glu	Lys	Val	Glu	Leu	Val	Thr	Gly
2015						2020					2025			
Glu	Glu	Asp	Glu	Lys	Val	Leu	Tyr	Ser	Gln	Arg	Val	Lys	Leu	Phe
2030						2035					2040			
Arg	Phe	Asp	Ala	Glu	Val	Ser	Gln	Trp	Lys	Glu	Arg	Gly	Leu	Gly
2045						2050					2055			



Val Thr	Gln Glu Glu Glu Arg	Asp Gly Gln Tyr Phe	Glu Pro Val
2300	2305	2310	
Val Pro	Leu Pro Asp Leu Val	Glu Val Ser Ser Gly	Glu Glu Asn
2315	2320	2325	
Glu Gln	Val Val Phe Ser His	Arg Ala Lys Leu Tyr	Arg Tyr Asp
2330	2335	2340	
Lys Asp	Val Gly Gln Trp Lys	Glu Arg Gly Ile Gly	Asp Ile Lys
2345	2350	2355	
Ile Leu	Gln Asn Tyr Asp Asn	Lys Gln Val Arg Ile	Val Met Arg
2360	2365	2370	
Arg Asp	Gln Val Leu Lys Leu	Cys Ala Asn His Arg	Ile Thr Pro
2375	2380	2385	
Asp Met	Thr Leu Gln Asn Met	Lys Gly Thr Glu Arg	Val Trp Leu
2390	2395	2400	
Trp Thr	Ala Cys Asp Phe Ala	Asp Gly Glu Arg Lys	Val Glu His
2405	2410	2415	
Leu Ala	Val Arg Phe Lys Leu	Gln Asp Val Ala Asp	Ser Phe Lys
2420	2425	2430	
Lys Ile	Phe Asp Glu Ala Lys	Thr Ala Gln Glu Lys	Asp Ser Leu
2435	2440	2445	
Ile Thr	Pro His Val Ser Arg	Ser Ser Thr Pro Arg	Glu Ser Pro
2450	2455	2460	
Cys Gly	Lys Ile Ala Val Ala	Val Leu Glu Glu Thr	Thr Arg Glu
2465	2470	2475	
Arg Thr	Asp Val Ile Gln Gly	Asp Asp Val Ala Asp	Ala Thr Ser
2480	2485	2490	
Glu Val	Glu Val Ser Ser Thr	Ser Glu Thr Thr Pro	Lys Ala Val
2495	2500	2505	
Val Ser	Pro Pro Lys Phe Val	Phe Gly Ser Glu Ser	Val Lys Ser
2510	2515	2520	

Ile	Phe	Ser	Ser	Glu	Lys	Ser	Lys	Pro	Phe	Ala	Phe	Gly	Asn	Ser
2525						2530					2535			
Ser	Ala	Thr	Gly	Ser	Leu	Phe	Gly	Phe	Ser	Phe	Asn	Ala	Pro	Leu
2540						2545					2550			
Lys	Ser	Asn	Asn	Ser	Glu	Thr	Ser	Ser	Val	Ala	Gln	Ser	Gly	Ser
2555						2560					2565			
Glu	Ser	Lys	Val	Glu	Pro	Lys	Lys	Cys	Glu	Leu	Ser	Lys	Asn	Ser
2570						2575					2580			
Asp	Ile	Glu	Gln	Ser	Ser	Asp	Ser	Lys	Val	Lys	Asn	Leu	Phe	Ala
2585						2590					2595			
Ser	Phe	Pro	Thr	Glu	Glu	Ser	Ser	Ile	Asn	Tyr	Thr	Phe	Lys	Thr
2600						2605					2610			
Pro	Glu	Lys	Ala	Lys	Glu	Lys	Lys	Lys	Pro	Glu	Asp	Ser	Pro	Ser
2615						2620					2625			
Asp	Asp	Asp	Val	Leu	Ile	Val	Tyr	Glu	Leu	Thr	Pro	Thr	Ala	Glu
2630						2635					2640			
Gln	Lys	Ala	Leu	Ala	Thr	Lys	Leu	Lys	Leu	Pro	Pro	Thr	Phe	Phe
2645						2650					2655			
Cys	Tyr	Lys	Asn	Arg	Pro	Asp	Tyr	Val	Ser	Glu	Glu	Glu	Glu	Asp
2660						2665					2670			
Asp	Glu	Asp	Phe	Glu	Thr	Ala	Val	Lys	Lys	Leu	Asn	Gly	Lys	Leu
2675						2680					2685			
Tyr	Leu	Asp	Gly	Ser	Glu	Lys	Cys	Arg	Pro	Leu	Glu	Glu	Asn	Thr
2690						2695					2700			
Ala	Asp	Asn	Glu	Lys	Glu	Cys	Ile	Ile	Val	Trp	Glu	Lys	Lys	Pro
2705						2710					2715			
Thr	Val	Glu	Glu	Lys	Ala	Lys	Ala	Asp	Thr	Leu	Lys	Leu	Pro	Pro
2720						2725					2730			
Thr	Phe	Phe	Cys	Gly	Val	Cys	Ser	Asp	Thr	Asp	Glu	Asp	Asn	Gly
2735						2740					2745			
Asn	Gly	Glu	Asp	Phe	Gln	Ser	Glu	Leu	Gln	Lys	Val	Gln	Glu	Ala
2750						2755					2760			

Gln	Lys	Ser	Gln	Thr	Glu	Glu	Ile	Thr	Ser	Thr	Thr	Asp	Ser	Val
2765						2770					2775			
Tyr	Thr	Gly	Gly	Thr	Glu	Val	Met	Val	Pro	Ser	Phe	Cys	Lys	Ser
2780						2785					2790			
Glu	Glu	Pro	Asp	Ser	Ile	Thr	Lys	Ser	Ile	Ser	Ser	Pro	Ser	Val
2795						2800					2805			
Ser	Ser	Glu	Thr	Met	Asp	Lys	Pro	Val	Asp	Leu	Ser	Thr	Arg	Lys
2810						2815					2820			
Glu	Ile	Asp	Thr	Asp	Ser	Thr	Ser	Gln	Gly	Glu	Ser	Lys	Ile	Val
2825						2830					2835			
Ser	Phe	Gly	Phe	Gly	Ser	Ser	Thr	Gly	Leu	Ser	Phe	Ala	Asp	Leu
2840						2845					2850			
Ala	Ser	Ser	Asn	Ser	Gly	Asp	Phe	Ala	Phe	Gly	Ser	Lys	Asp	Lys
2855						2860					2865			
Asn	Phe	Gln	Trp	Ala	Asn	Thr	Gly	Ala	Ala	Val	Phe	Gly	Thr	Gln
2870						2875					2880			
Ser	Val	Gly	Thr	Gln	Ser	Ala	Gly	Lys	Val	Gly	Glu	Asp	Glu	Asp
2885						2890					2895			
Gly	Ser	Asp	Glu	Glu	Val	Val	His	Asn	Glu	Asp	Ile	His	Phe	Glu
2900						2905					2910			
Pro	Ile	Val	Ser	Leu	Pro	Glu	Val	Glu	Val	Lys	Ser	Gly	Glu	Glu
2915						2920					2925			
Asp	Glu	Glu	Ile	Leu	Phe	Lys	Glu	Arg	Ala	Lys	Leu	Tyr	Arg	Trp
2930						2935					2940			
Asp	Arg	Asp	Val	Ser	Gln	Trp	Lys	Glu	Arg	Gly	Val	Gly	Asp	Ile
2945						2950					2955			
Lys	Ile	Leu	Trp	His	Thr	Met	Lys	Asn	Tyr	Tyr	Arg	Ile	Leu	Met
2960						2965					2970			
Arg	Arg	Asp	Gln	Val	Phe	Lys	Val	Cys	Ala	Asn	His	Val	Ile	Thr
2975						2980					2985			

Lys Thr Met Glu Leu Lys Pro Leu Asn Val Ser Asn Asn Ala Leu  
 2990 2995 3000  
 Val Trp Thr Ala Ser Asp Tyr Ala Asp Gly Glu Ala Lys Val Glu  
 3005 3010 3015  
 Gln Leu Ala Val Arg Phe Lys Thr Lys Glu Val Ala Asp Cys Phe  
 3020 3025 3030  
 Lys Lys Thr Phe Glu Glu Cys Gln Gln Asn Leu Met Lys Leu Gln  
 3035 3040 3045  
 Lys Gly His Val Ser Leu Ala Ala Glu Leu Ser Lys Glu Thr Asn  
 3050 3055 3060  
 Pro Val Val Phe Phe Asp Val Cys Ala Asp Gly Glu Pro Leu Gly  
 3065 3070 3075  
 Arg Ile Thr Met Glu Leu Phe Ser Asn Ile Val Pro Arg Thr Ala  
 3080 3085 3090  
 Glu Asn Phe Arg Ala Leu Cys Thr Gly Glu Lys Gly Phe Gly Phe  
 3095 3100 3105  
 Lys Asn Ser Ile Phe His Arg Val Ile Pro Asp Phe Val Cys Gln  
 3110 3115 3120  
 Gly Gly Asp Ile Thr Lys His Asp Gly Thr Gly Gly Gln Ser Ile  
 3125 3130 3135  
 Tyr Gly Asp Lys Phe Glu Asp Glu Asn Phe Asp Val Lys His Thr  
 3140 3145 3150  
 Gly Pro Gly Leu Leu Ser Met Ala Asn Gln Gly Gln Asn Thr Asn  
 3155 3160 3165  
 Asn Ser Gln Phe Val Ile Thr Leu Lys Lys Ala Glu His Leu Asp  
 3170 3175 3180  
 Phe Lys His Val Val Phe Gly Phe Val Lys Asp Gly Met Asp Thr  
 3185 3190 3195  
 Val Lys Lys Ile Glu Ser Phe Gly Ser Pro Lys Gly Ser Val Cys  
 3200 3205 3210  
 Arg Arg Ile Thr Ile Thr Glu Cys Gly Gln Ile  
 3215 3220